

REMARKS/ARGUMENTS

Overview

The present application includes claims 1-25. With this amendment Applicants have amended claims 1, 3, 5, 7, 9, 10, 12, 14, 15, 17, and 20, cancelled claim 6 without prejudice or disclaimer of subject matter, and added claim 26. As such, claims 1-5 and 7-26 are pending in this application.

Restriction Requirement

In response to the withdrawal of the restriction requirement, Applicant has changed the status identifier of claims with claims 2, 5-7, and 9-11 from Withdrawn to Original or Currently Amended if amended in this amendment.

Claim Rejections under 35 U.S.C. 112

The Examiner rejected claims 1, 10, 17, and 20 as being indefinite. Each of these claims is an independent claim.

Claim 1

Applicants have amended claim 1 to recite, in part, that "the link system includes a device coupled to two links of the link system to orient the two links of the link system relative to each other, the device having an unrelaxed state when the link system is exerting the force on the head which causes the link system to simultaneously adapt to changes in the geometry of the head without manual intervention such that the head remains generally fixed over a period of time."

The specification provides discussions of various exemplary devices having an unrelaxed state which are coupled to the link system to cause "the link system to simultaneously adapt to changes in the geometry of the head without manual intervention such that the head remains generally fixed over a period of time." By way of example, numbered paragraphs [0068] and [0069] of the published application discuss one such device, compliant link 226. These paragraphs state in part:

Compliant link 226 exerts a force on links 212, 214 which in turn causes constraints 216, 218 to remain in contact with head 10. In one embodiment, compliant link 226 exerts at least one of a tension force or a compressive force. Compliant link 226 in one example is an elastic band or leaf spring. In another example, compliant link 226 is a spring such as a coil spring. As such, compliant link 226 has a relaxed state and an unrelaxed state. Compliant link 226 is

coupled to third link 212 and fourth link 214 such that when link system 204 is applied to head 10 compliant link 226 is in the unrelaxed state. Compliant link 226 in combination with the joints formed by couplers 220, 222, and 224 permit link system 204 to adapt to small changes in the geometry of the head. For instance, if the portion of head 10 engaged by one of the plurality of constraints 216 recesses, the force applied by compliant link 226 causes the relative arrangement of at least some of links 208, 210, 212, 214 to adjust such that the one constraint proximate to the recess maintains engagement with head 10.

It should be noted that compliant link 226 is only an example of such a device. As the Examiner alludes to at the bottom of page 7 of the Office Action there are multiple devices that may be used.

Applicants submit that this amendment provides sufficient structural limitations for one of ordinary skill in the art to understand how the claim limitation that the apparatus "simultaneously adapt[s] to changes in the geometry of the head without manual intervention such that the head remains generally fixed over a period of time" is accomplished. Applicants request the rejection of claim 1 be removed.

Claim 10

Applicants have amended claim 10 to recite, in part, that "the link system remains generally fixed relative to the head over a period of time." Applicants request the rejection of claim 10 be removed.

Claim 17

Applicants have amended claim 17 to recite, in part, that the apparatus includes "a device coupled to the third link and the fourth link, the device including a force actuator and a compliant member, wherein the force actuator is configured to load each of the first plurality of constraints and each of the second plurality of constraints simultaneously ... and wherein the compliant member is configured to alter the orientation of the first link, the second link, the third link, and the fourth link to automatically adapt to changes in the geometry of the head without manual intervention such that the head remains generally fixed over the period of time."

Applicants submit that this amendment provides sufficient structural limitations for one of ordinary skill in the art to understand how the claim limitation that the apparatus "automatically adapt[s] to changes in the geometry of the head without manual intervention such

that the head remains generally fixed over the period of time" is accomplished. Applicants request the rejection of claim 17 be removed.

Claim 20

Applicants have amended claim 20 to recite, in part, that the first apparatus introduced in the first presented step includes "an adaptive link system having a plurality of links." Further, Applicants have amended the third presented step to recite "automatically altering the orientation of the links of the adaptive link system to adapt to changes in the geometry of the head without manual intervention such that the head remains generally fixed over time."

Claim 20 is a method claim, not an apparatus claim. As such, claim 20 is composed of steps which are to be performed. Applicants submit that the step of "automatically altering the orientation of the links of the adaptive link system to adapt to changes in the geometry of the head without manual intervention such that the head remains generally fixed over time" provides a definite method step and does not require the recitation of the structure of the adaptive link system which may perform that step. Applicants request the rejection of claim 20 be removed.

Claim Rejections under 35 U.S.C. 103

The Examiner rejected claims 1-11, 23, and 24 under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,667,660 to Eingorn ("Eingorn"). The rejected claims include independent claims 1 and 5 from which the remaining claims depend.

Claim 1

Applicant submits that Eingorn, does not disclose, teach, or suggest the apparatus for limiting the movement of the head of a person of amended independent claim 1 comprising "a link system including a plurality of links; a first plurality of constraints rigidly coupled to a first link of the link system and adapted to engage the left half of the head of the person; and a second plurality of constraints rigidly coupled to a second link of the link system and adapted to engage the right half of the head of the person ... wherein the link system includes a device coupled to two links of the link system to orient the two links of the link system relative to each other, the device having an unrelaxed state when the link system is exerting the force on the head which causes the link system to simultaneously adapt to changes in the geometry of the head without manual intervention such that the head remains generally fixed over a period of time."

The Examiner states at the top of page 4 of the Office Action that "the limitation of simultaneous adaptation ..." was not considered in making this rejection of claim 1 due to reasons given in the 112 rejection of claim 1. Applicants submit that the amendments to claim 1 overcome the 112 rejection, as stated herein, and that Eingorn does not disclose, teach, or suggest a link system supporting rigidly coupled constraints wherein the link system " includes a device coupled to two links of the link system to orient the two links of the link system relative to each other, the device having an unrelaxed state when the link system is exerting the force on the head which causes the link system to simultaneously adapt to changes in the geometry of the head without manual intervention such that the head remains generally fixed over a period of time."

For at least these reasons, Applicant submits that amended independent claim 1 is in condition for allowance. Such action is respectfully requested.

Claims 3, 4, 8-11, 23, and 24 depend from independent claim 1 and are believed to be in condition for allowance at least for the reasons given above in connection with claim 1, and for the further limitations of claims 3, 4, 8-11, 23, and 24. Such action is respectfully requested.

Claim 5

Claim 5 has been presented as an independent claim including generally the limitations of claims 2-5. Applicant submits that Eingorn, does not disclose, teach, or suggest the apparatus for limiting the movement of the head of a person of amended independent claim 5. The Examiner appears to agree with this point as expressed in the comments in the section entitled "Allowable Subject Matter" on page 7 of the Office Action.

For at least these reasons, Applicant submits that amended independent claim 5 is in condition for allowance. Such action is respectfully requested.

Claim 7 depend from independent claim 5 and are believed to be in condition for allowance at least for the reasons given above in connection with claim 5, and for the further limitations of claim 7. Such action is respectfully requested.

The Examiner rejected claims 12-17, 19-22, and 25 under 35 U.S.C. 103(a) as being unpatentable over Eingorn in view of US Patent 6,179,846 to McFadden ("McFadden").

The rejected claims include independent claims 17 and 20 from which the remaining claims depend with the exception of claims 12-16.

Claims 12-16 depend from independent claim 1 and are believed to be in condition for allowance at least for the reasons given above in connection with claim 1, and for the further limitations of claims 12-16. Such action is respectfully requested.

In rejecting claims 17 and 20, the Examiner makes reference to the rejection of claim 1 wherein claim limitations were not considered due to the 112 rejection of claim 1. Applicants assume that due to the reference to the rejection of claim 1, the Examiner is applying the same thought process to each of independent claims 17 and 20, namely not considering the limitations which were the basis of the 112 rejection of the respective claim.

With reference to claim 17, Applicants submit that the amendments to claim 17 overcome the 112 rejection, as stated herein, and that Applicants submit that Eingorn, alone or in combination with McFadden does not disclose, teach, or suggest the apparatus of claim 17. For at least these reasons, Applicant submits that amended independent claim 17 is in condition for allowance. Such action is respectfully requested.

Claim 19 depends from claim 17 and is believed to be in condition for allowance at least for the reasons given above in connection with claim 17, and for the further limitations of claim 19. Such action is respectfully requested.

With reference to claim 20, Applicants submit that the amendments to claim 20 overcome the 112 rejection, as stated herein, and that Applicants submit that Eingorn, alone or in combination with McFadden does not disclose, teach, or suggest the method of claim 20. For at least these reasons, Applicant submits that amended independent claim 20 is in condition for allowance. Such action is respectfully requested.

Claims 21 and 22 depend from claim 20 and are believed to be in condition for allowance at least for the reasons given above in connection with claim 20, and for the further limitations of claims 21 and 22. Such action is respectfully requested.

The Examiner rejected claim 18 under 35 U.S.C. 103(a) as being unpatentable over Eingorn in view of McFadden and US Patent 5,674,186 to Guigui et al ("Guigui").

Claim 18 depends from claim 17 and is believed to be in condition for allowance at least for the reasons given above in connection with claim 17, and for the further limitations of claim 18. Such action is respectfully requested.

New Claims

With this Amendment, Applicants have added claim 26 which is directed to an apparatus for limiting the movement of the head of a person. Claim 26 includes a means-plus-function limitation written in accordance with 35 USC §112, 6. The means-plus-function limitation is "means for simultaneously adapting the link system to changes in the geometry of the head without manual intervention such that the head remains generally fixed over a period of time." Applicants request consideration and allowance of claim 26.

Final Remarks

Claims 1-5 and 7-26 are believed to be in condition for allowance. Such allowance is respectfully requested. If necessary, please consider this a Petition for Extension of Time to effect a timely response. Please charge any additional fees or credits to the account of Baker & Daniels Deposit Account No. 02-0390. In the event that there are any questions related to these amendments or to the application in general, the undersigned would appreciate the opportunity to address those questions directly in a telephone interview to expedite the prosecution of this application for all concerned.

Respectfully submitted,

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